

Introduction:

EcoBoat is a school project whose objectives are to combat contamination by using a self-driving boat that collects floating residues from rivers and also to encourage people to take steps to prevent pollution.

Now we are working on a reduced-scale prototype. However, once this prototype is working, we intend to build this boat on a larger scale so that it can be used in the rivers all around the world.

General Description:

EcoBoat will be at a charging station where it will charge by using solar energy, which will reduce contamination and will not generate any kind of residues. The station will be equipped with barriers to prevent the boat from being driven by the river current.

Once the batteries are fully charged, the ship will set sail. This project will be provided with an autopilot which will control every system of the EcoBoat; this way, there will be no need of a human to operate it. However, there will be a server which will have all the information needed to check whether the boat is working properly or not.

The user would have to introduce a route for the autopilot to follow. Once the boat is moving, it will catch the floating residues with the help of pitchers mounted in a conveyor belt and it will store them in a trash deposit in the back of the vehicle. When the route has all been covered, a person shall remove the deposit from the ship. It will go back to the charging station by its own means.

Technical Description:

EcoBoat will make use of a solar panel to charge its batteries. The user should establish a route for the boat to clean. This project will have a GPS in order to determine its location and a series of waypoints (in coordinates) will be established by an algorithm depending on the route previously introduced. This way, boat program will action its engine and its rudder in order to move it in the right direction. It will also be provided with ultrasonic sensors to prevent the ship from crashing with the borders of the river. Furthermore, it will have sounding lines to determine if the water level is enough to sail and to detect if there are any other ships nearby (in which case the boat will just stop).

Using pitchers, the boat will pick up the floating residues from the water and put them into a deposit. When EcoBoat finalizes its route, the trash will be removed manually and it will go back to the charging station.

This project will also have a real time diagnosis system of every part of the boat. This will be displayed in a comfortable graphic interface from a remote station.

